

IN THE CLAIMS

Please amend the claims as follows:

1 1. (original) A method for managing workload distribution in a multiple processor  
2 cluster system to conserve energy, comprising the steps of:

3 classifying persistent states and connections within said cluster system according  
4 to an activity referencing said persistent states and connections;

5 receiving a request to modify a workload of said cluster system;

6 determining a minimum number of processors in said cluster system for executing  
7 said modified workload while maintaining said persistent states and connections;

8 determining a workload distribution within said minimum number of processors  
9 that satisfies said modified workload while maintaining said persistent states and  
10 connections; and

11 modifying an operation mode of a selected processor in said processors of said  
12 cluster system to conserve energy while satisfying said modified workload while  
13 maintaining said persistent states and connections.

1 2. (original) The method of claim 1, further comprising the step of migrating persistent  
2 states and connections within said cluster system to effect said workload distribution.

1 3. (original) The method of claim 1, wherein said operation mode of said selected  
2 processor is modified by setting said selected processor to an off mode.

1 4. (original) The method of claim 1, wherein said operation mode of said selected  
2 processor is modified by setting said selected processor to a stand-by mode.

1 5. (original) The method of claim 1, wherein said operation mode of said selected  
2 processor is modified by setting said selected processor to an active full power mode  
3 from an off or a stand-by mode.

1 6. (original) The method of claim 1, wherein said step of determining said workload  
2 distribution for said minimum number of processors uses a constraint based bin packing  
3 algorithm.

1 7. (currently amended) The method of claim [[5]]6, wherein a particular constraint of  
2 said bin packing algorithm comprises minimizing a number of processes and states  
3 migrated to effect said workload distribution.

1 8. (original) A cluster system comprising;  
2 a multiple processor central processing unit (CPU) having circuitry for classifying  
3 persistent states and connections within said cluster system according to an activity  
4 referencing said persistent states and connections, circuitry for receiving a request to  
5 modify a workload of said cluster system, circuitry for determining a minimum number  
6 of processors in said cluster system for executing said modified workload while  
7 maintaining said persistent states and connections, circuitry for determining a workload  
8 distribution within said minimum number of processors that satisfies said modified  
9 workload while maintaining said persistent states and connections, and circuitry for  
10 modifying an operation mode of a selected processor in said processors of said cluster  
11 system to conserve energy while satisfying said modified workload while maintaining  
12 said persistent states and connections;  
13 a random access memory (RAM);  
14 a communications adapter coupled to a communication network; and  
15 a bus system coupling said CPUs to said communications adapter and said RAM.

1 9. (original) The cluster system of claim 9, further comprising the step of migrating  
2 persistent states and connections within said cluster system to effect said workload  
3 distribution.

1 10. (original) The cluster system of claim 9, wherein said operation mode of said  
2 selected processor is modified by setting said selected processor to an off mode.

1 11. (original) The cluster system of claim 9, wherein said operation mode of said  
2 selected processor is modified by setting said selected processor to a stand-by mode.

1 12. (original) The cluster system of claim 9, wherein said operation mode of said  
2 selected processor is modified by setting said selected processor to an active full power  
3 mode from an off or a stand-by mode.

1 13. (original) The cluster system of claim 9, wherein said step of determining said  
2 workload distribution for said minimum number of processors uses a constraint based bin  
3 packing algorithm.

1 14. (original) The cluster system of claim 13, wherein a particular constraint of said bin  
2 packing algorithm comprises minimizing a number of processes and states migrated to  
3 effect said workload distribution.

1 15. (original) A computer program product for managing workload distribution in a  
2 multiple processor cluster system to conserve energy, said computer program product  
3 embodied in a machine readable medium for energy management in a computer system  
4 having a plurality of computation nodes, including programming for a processor, said  
5 computer program comprising a program of instructions for performing the program  
6 steps of:

7 classifying persistent states and connections within said cluster system according  
8 to an activity referencing said persistent states and connections;

9 receiving a request to modify a workload of said cluster system;

10 determining a minimum number of processors in said cluster system for executing  
11 said modified workload while maintaining said persistent states and connections;

12 determining a workload distribution within said minimum number of processors  
13 that satisfies said modified workload while maintaining said persistent states and  
14 connections; and

15 modifying an operation mode of a selected processor in said processors of said  
16 cluster system to conserve energy while satisfying said modified workload while  
17 maintaining said persistent states and connections.

1 16. (original) The computer program product of claim 15, further comprising the step of  
2 migrating persistent states and connections within said cluster system to effect said  
3 workload distribution.

1 17. (original) The computer program product of claim 15, wherein said operation mode  
2 of said selected processor is modified by setting said selected processor to an off mode.

1 18. (original) The computer program product of claim 15, wherein said operation mode  
2 of said selected processor is modified by setting said selected processor to a stand-by  
3 mode.

1 19. (original) The computer program product of claim 15, wherein said operation mode  
2 of said selected processor is modified by setting said selected processor to an active full  
3 power mode from an off or a stand-by mode.

1 20. (original) The computer program product of claim 15, wherein said step of  
2 determining said workload distribution for said minimum number of processors uses a  
3 constraint based bin packing algorithm.

1 21. (original) The computer program product of claim 20, wherein a particular  
2 constraint of said bin packing algorithm comprises minimizing a number of processes  
3 and states migrated to effect said workload distribution.